

efunda

engineering fundamentals

Properties of

[About Us](#) [Trade Show](#) [Career](#) [News](#) [Chat](#) [InfoStore](#) [SpecSearch](#) [A](#)

Search Alloys

steel hardness

Keywords

Go

from R&D
to Production
Work with the Best



quickparts.com

Instant Quotes For Qu

SLA - SLS - FDM - Poly

Metal Alloys

Alloy Home

Ferrous Alloys

Steels in General

Steel Properties

ASTM Steel

Alloy Steels

Carbon Steels

Stainless Steels

Tool Steels

Non-Ferrous Alloys

Aluminum Alloys

Copper Alloys

Magnesium Alloys

Titanium Alloys

Resources

Bibliography

Related Suppliers

Wakefield

MCR Associates

Batesville

RG Consulting

more...



Login

Copyright © 2002 eFunda

[Home](#) [Membership](#) [Palm Store](#) [Forum](#) [Search Member](#) [What's New](#)

Search All for steel hardness

[Materials](#) [Design Center](#) [Processes](#) [Units & Constants](#) [Formulas](#) [M](#)

General Properties of Steels

The following table lists the typical properties of steels at room temperature. The wide ranges of ultimate tensile strength, yield strength, and hardness are due to different heat treatment conditions.

Properties	Carbon Steels	Alloy Steels	Stainless Steels	T St
Density (1000 kg/m ³)	7.85	7.85	7.75-8.1	7.7
Elastic Modulus (GPa)	190-210	190-210	190-210	190
Poisson's Ratio	0.27-0.3	0.27-0.3	0.27-0.3	0.2
Thermal Expansion (10 ⁻⁶ /K)	11-16.6	9.0-15	9.0-20.7	9.4
Melting Point (°C)			1371-1454	
Thermal Conductivity (W/m-K)	24.3-65.2	26-48.6	11.2-36.7	19.9
Specific Heat (J/kg-K)	450-2081	452-1499	420-500	
Electrical Resistivity (10 ⁻⁹ Ω-m)	130-1250	210-1251	75.7-1020	
Tensile Strength (MPa)	276-1882	758-1882	515-827	640
Yield Strength (MPa)	186-758	366-1793	207-552	380
Percent Elongation (%)	10-32	4-31	12-40	5
Hardness (Brinell 3000kg)	86-388	149-627	137-595	210



Metals Handbook,
Rev. ed., by Davis,
J.R. (ed.)



ASM Engineering Materials
Reference Book, 2nd ed., by
Bauccio, M. (ed.)



Engineering
of Steel, , b
P.D. (ed.)

[About Us](#) [Tell a Friend](#) [Suggestion](#) [Privacy](#) [Disclaimer](#) [Contact](#)

[Click here to find out more!](#)

Fundamentals of Machine Component
design Page 85